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ABSTRACT

This study used systematic, direct observation of classes over 2 years to investigate whether physical education (PE) teachers' habitual physical activity related to their conduct of PE classes. Participants were 18 fourth and fifth grade classroom teachers employed in a California school district where classroom teachers typically were responsible for teaching their own PE. They had participated in staff development and received a PE curriculum, and they were encouraged to be physically active for their own health. Over the 4 semesters, teachers completed a self-report instrument that examined how many times they did bouts of strenuous, moderate, and mild physical activity/exercise for 15 minutes or more during their free time the previous week. During the same 4 semesters, researchers observed the teachers' PE classes systematically using the System for Observing Fitness Instruction Time instrument. Data analysis indicated that teachers with greater habitual physical activity promoted fitness more than their less active counterparts. They were much more actively engaged in providing instruction, which indicates a higher quality of instruction. The more active teachers tended to provide more opportunities for their students to participate in moderately vigorous physical activity and vigorous activity bouts. (Contains 15 references.) (SM)

# Habitual physical activity of classroom teachers: Does it relate to their conduct of physical education classes?

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**Habitual physical activity of classroom teachers:
Does it relate to their conduct of physical education classes?**

For over a 12 year period children spend a large amount of time at school interacting closely with teachers. The high regard that educators hold toward good health habits may provide a positive role model for their students (Clark, Blair, & Culan, 1988). Specifically related to physical education, Whitley, Sage and Butcher (1988) stated "the importance of strong, positive, and effective role modeling by teachers in creating and reinforcing desired behavior is well known and widely accepted and is especially critical for successful instruction in physical education" (p. 81).

Although there has been interest in whether physical education teachers are providing positive examples concerning physical fitness and well being, only a few studies related to teachers' physical activity and/or fitness and how they instruct have been reported. Melville and Maddalozzo (1988) examined the effect of modifying a physical education teacher's appearance of body fat on students' perception of that teacher's effectiveness. They concluded that students very strongly believed physical educators should model good fitness behaviors, and in absence of a good role model students were less attentive to the subject matter and doubted the instructors' level of knowledge concerning fitness.

A sample of physical education teachers were tested for cardiorespiratory endurance, muscular endurance, body composition, and flexibility (Brandon & Evans, 1988). Results indicated the physical education teachers had below average overall fitness levels. The only fitness measure that was above average compared to the Georgia State University Fitness Center norms was muscular endurance.

Bischoff, Plowman, & Lindenman (1988) examined the relationship between teacher fitness and teacher/student interaction in the classroom. Results indicated that teachers' fitness levels were not a significant factor in teacher/student classroom interactions, however, it was noted that the less fit teachers tended to fatigue faster than the more fit teachers.

Few studies (Whitley et al., 1988) have examined the relationship between teacher's own habitual physical activity engagement and their conduct of physical education. Previous studies with similar objectives have relied upon teachers' self report of their conduct of physical education. The present study improves on this methodology by using systematic, direct observation of classes over an extended, two-year period. Additionally, much of the physical education at elementary schools is taught by classroom teachers (National Association for Sport and Physical Education, 1994). Since students are with classroom teachers most of the school day, the resulting modeling may have even more health impact than from a physical education specialist. Therefore it is important to extend the research literature by systematically measuring both teacher and student activity levels and determining if there were significant relationship between these variables.

**Methods**

Participants were 18 fourth- and fifth-grade classroom teachers from two elementary schools in a upper-middle class suburb in Southern California. These teachers were employed in a district where classroom teachers were typically responsible for teaching

their own physical education. They were part of a larger study of curriculum and staff development (Sallis, McKenzie, et al., 1997). As part of the larger study, the teachers participated in a staff development program and received a physical education curriculum which contained developmentally appropriate unit and lesson plans. Teachers were encouraged to be physically active for their own health and well-being.

**Teacher habitual physical activity**.
Two sets of data were collected over a two year period. Teachers completed an adaptation of a validated self-report instrument (Godin Leisure-Time Exercise Questionnaire, 1997; Godin & Shephard, 1985) periodically (mean = 3.7 times) over four consecutive semesters. On the questionnaire teachers reported how many times they did bouts of strenuous, moderate, and mild physical activity/exercise for 15 minutes or more during their free time for the previous two weeks. Habitual physical activity for each individual teacher was calculated by determining the mean bouts per week in each category reported over the four semesters. Frequency of activity in each category were multiplied by intensity weightings, and the products were summed to create and activity index.

**Conduct of physical education**
During the same 4 semesters, the physical education classes of the teachers was observed systematically using SOFIT (System for Observing Fitness Instruction Time) during 20 days selected at random (McKenzie, Sallis, & Nader, 1991). SOFIT uses codes to estimate energy expenditure associated with physical activity. On a rotational basis, physical activity levels of randomly selected students are coded every 20 seconds throughout entire lessons. Four codes describe the body position of the target student (lying down, sitting, standing, or walking) and a fifth code (very active) identifies when the student expends more energy than during ordinary walking, irrespective of body position. Simultaneously, the curricular lesson context and the behavior of the teacher are coded. Detailed procedures for using SOFIT have been published elsewhere (McKenzie et al., 1994).

**Analysis**
Pearson correlations were used to assess the relationship between teachers' self-reported physical activity and the conduct of their physical education classes. Teachers' physical activity reports on the Godin assessment were converted to MET (metabolic equivalent) values (Ainsworth et al, 1993).

## Results

**Teachers' habitual physical activity**
Teachers reported participating in an average of 5.2 activity bouts per week, which included 1.7 bouts of slow (walking, golfing, bowling, etc.), 1.5 bouts of medium physical activity (tennis, hiking, basketball, etc.) and 2 bouts of fast physical activity (running, bicycling, aerobics, etc.). Approximately 68% of teachers energy expenditure from physical activity occurred before or after school on weekdays and 32% occurred on weekends. Teachers exerted an equivalent of 30.6 MET per week, with approximately 59% of METS being expended during bouts of fast activity.

**Relationship between habitual physical activity and conduct of PE class**

Results indicated there was a positive but nonsignificant relationship between teachers' habitual physical activity and several variables. These included the number of lessons ($r=.24$; $p<0.17$) and total number of minutes of physical education they provided per week ($r=.22$; $p<0.20$), as well as the number of minutes their students engaged in moderate to vigorous physical activity (MVPA) ($r=.33$; $p<0.09$) and high intensity activity ($r=.30$; $p<0.11$). There were no significant relationships between teachers' habitual physical activity and the lesson context they provided (i.e. time allocated for management, fitness, skill drills, game play). There were, however, significant correlations between teachers' habitual physical activity and how they themselves behaved during class time. Teachers who were habitually more active spent both more minutes per week ($r=.51$; $p<0.014$) and a greater proportion of lesson time promoting fitness ($r=.49$; $p<0.019$) than their less active counterparts. Additionally, these habitually more active teachers tended to provide both more minutes of non-fitness instruction ($r=.38$; $p<0.058$) and a greater proportion of lesson time providing instruction ($r=.36$; $p<0.069$).

**Discussion**

Although correlations were modest it is evident that teachers with greater habitual physical activity promoted fitness more than their less active counterparts. They were much more actively engaged in providing instruction (i.e., providing prompts and feedbacks) which indicates a higher quality of instruction. This supports the notion that more active teachers provide a positive role model for their students (Clark et al, 1988). Furthermore, the more active teachers tended to provide more opportunities for their students to participate in MVPA and VA activity bouts. Engagement in these types of activities might reduce the risk of cardiovascular disease in children (McKenzie, Feldman, Woods, Romero, Dahlstrom, Stone, Strikmiller, Williston, & Harsha, 1995).

While the amount of time spent on lesson components alone cannot identify a more effective teaching environment, Brophy and Good (1986) identified that actively involved teachers are more effective in providing instruction. The more active teachers in this study provided more time for their students to participate in activities and were more active as they instructed. Findings from this study suggest that teachers of physical education who are more habitually active encourage their students to also be more active. Additional studies using an expanded and more diverse cohort of teachers are needed to increase the knowledge base concerning the physical activity of teachers and their conduct of physical education classes.

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